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Tai Ming Cheung

To cite this article: Tai Ming Cheung (2017) Commentary on Asian arms industries and impact on military capabilities, *Defence Studies*, 17:3, 312-316, DOI: [10.1080/14702436.2017.1345279](https://doi.org/10.1080/14702436.2017.1345279)

To link to this article: <https://doi.org/10.1080/14702436.2017.1345279>



Published online: 30 Jun 2017.



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Commentary on Asian arms industries and impact on military capabilities

Tai Ming Cheung

School of Global Policy and Strategy, University of California San Diego, La Jolla, CA, USA

ABSTRACT

This paper shows how alliance networks have affected defence industrialization policies and processes in countries in the Asia-Pacific region. In countries that enjoyed security assurances from the United States like Japan and South Korea, they are primarily focused on industrialization and technology development in civilian sectors, and consequently, defence industrialization is a secondary priority. On the other hand, defence industrialization was/is of higher priority for states that face acute security threats such as China and the Democratic People's Republic of Korea. In contemporary industrialization processes, the paper concludes that the preference between commercial and defence industrialization is now closing, leading towards an integrated model from which both sectors can benefit.

ARTICLE HISTORY

Received 2 March 2017

Accepted 19 June 2017

KEYWORDS

Arms industry; Asia; techno-nationalism; security policy

Bitzinger's (2017) survey of the current state of Asia's major arms industries and the impact on military capabilities is an informative overview of some of the key features, dynamics, and structural problems this region faces in defence industrial production in the mid-2010s. This commentary addresses one of the key questions that Bitzinger poses in his article: Why do Asian countries choose to manufacture their own arms?

Bitzinger (2017) offers a number of rationales to explain why Asian states are keen to undertake the costly process of developing indigenous arms production capabilities. They include: (1) the need for self-reliance in an anarchic international system; (2) the use of defence industrialization to drive overall national development; and (3) the influence of nationalism, status, and prestige in shaping the thinking of decision-makers, or what Bitzinger defines as the "techno-nationalist impulse."

Techno-nationalism as a state ideology is a useful starting point from which to examine and compare the attitudes and strategic thinking behind the defence industrialization approaches pursued by Asian countries as part of their catch-up to the global frontier (For a more extensive discussion of this issue, see Cheung 2013). Techno-nationalism refers to a state-controlled and closed door approach to technological innovation aimed at safeguarding national security, economic competitiveness, and international status. Emphasis is placed on nurturing indigenous capabilities through adoption of highly regulated protectionist

regimes that sharply restricts foreign direct investment but encourages the one-way importation of advanced technology and knowledge.

This techno-nationalist ideology was especially enticing for countries in North-east Asia that emerged from war and foreign occupation in the late 1940s and 1950s. National policy-makers in this region focused on state building and economic development, and their thinking and approaches to these priorities were framed by two common and powerful influences: nationalism and security. Other states in the region such as India and Indonesia during the 1980s and 1990s also embraced techno-nationalism, but the focus of this review will concentrate on North-east Asia.

The rise of the developmental state in Japan, South Korea, and Taiwan, along with China and North Korea, was decisively shaped by war, colonialism, and the fear of war (Woo-Cummings 2005). The security relationships that these countries had with their superpower benefactors, either the United States or Soviet Union, also had a profound impact. These experiences led to a distinctive regional pattern of industrialization and technological development that was geared towards a “perpetual mobilization for war” during the cold war (Woo-Cummings 2005, p. 98).

In the technological arena, these shared security concerns – although viewed from opposing sides – led North-east Asian states to become ardent proponents of the techno-nationalist school in their initial stages of industrialization, especially in placing national security considerations at the top of their development priorities. This accounted for the region-wide emphasis on the building of heavy, strategic, and technology-intensive industries.

Table 1. Key features of the military and commercial versions of the techno-nationalist development model.

	Military techno-nationalist development model	Commercial techno-nationalist development model
Key regimes	Pre-1978 China, North Korea, Pre-Second World War Japan, Soviet Union	Post-1945 Japan, South Korea, Taiwan, Post-1978 China
Development priorities	Defence industrial base and heavy industries	Heavy, export-oriented, and high-technology industries (Iron & Steel, Chemicals, Electronics)
Threat environment and security posture	Acute external threats, militarization of entire state	Severe external threats, significant defence outlays, heavy reliance on security protection from the US (China excepted)
Orientation and nature of economy	Closed autarkic system; command-style economy	Semi-open economy with extensive trading links with western countries; market-oriented economic structure
Science and technology drivers	Overwhelmingly state-driven	Important roles played by the state, firms, and importation of foreign knowledge and technology transfers
Technology outputs	Military equipment, heavy industrial equipment	Consumer electronics and retail goods, heavy industrial equipment
Defence industrial production	High priority and accounts for substantial share of national industrial production	Secondary priority and accounts for a small share of national industrial production
Military capability	Large-sized military establishment with defence budget of least 4–5% of GDP or higher	Small to medium-sized military establishment with defence budget below 2–3% of GDP (South Korea excepted)

Two distinct types of techno-nationalist strategies and models – commercial and military – were adopted by North-east Asian states during this period. Table 1 offers key distinguishing characteristics between these two models. The commercial variant emphasizes the importance of technological and industrial autonomy for economic security, especially to allow home-grown vertically integrated firms to be competitive in the international marketplace. Defence industrial capacity is of secondary importance and accounts for a relatively small share of overall national industrial production.

In contrast, military techno-nationalism stresses the overriding importance of military security priorities in industrial development. The construction and maintenance of a large-sized defence industrial base along with supporting heavy industrial sectors is a high priority for military techno-nationalist regimes in order to meet strong demand from the domestic military establishment that is on constant alert in the face of perceived acute external threats.

The ability to conduct military techno-nationalism also depended on the technological levels of weapons systems being pursued. Indigenous production capabilities for most North-east Asian states were primarily limited to armament sectors that were less technologically advanced such as ground force equipment like artillery and smaller scale warships such as corvettes and patrol craft. More advanced weapons systems were generally beyond the scope of these countries unless they devoted significant resources, which China and North Korea has done.

How states made their choices depended on the nature of their political and economic systems, whether those in power supported or opposed international engagement, and their strategic alignments within the cold war system. States allied with the United States and with leaderships that supported international economic liberalization, such as Japan, the Republic of Korea (ROK), and Taiwan, pursued the commercial techno-nationalist model (Samuels 2007). They were able to focus their attention and resources on economic development because they enjoyed security protection from an expansive US forward-based military alliance system, generous US military and development assistance, and access to the US markets.

Pursuit of techno-nationalist policies by Japan and the ROK in the civilian sphere did not extend into the defence arena. They were required to enter into collaborative co-production and co-development projects with the United States, as this was the only way that Washington would allow transfers of sensitive defence-related technologies, especially from the 1990s onwards as products became increasingly complex. This technological and industrial subordination in defence was one of the costs paid by Tokyo and Seoul for their inclusion in the US bilateral defence alliance system that provided them much-needed and affordable security protection in a highly volatile region. Without the dominant US forward military presence in East Asia during the cold war, Japan, the ROK, and even Taiwan could not have pursued their commercial techno-nationalist models of development.

In contrast to the commercial focus of their North-east Asian neighbours during the Cold War, China and the Democratic People's Republic of Korea (DPRK) went down a development path that stressed the overriding importance of military priorities in their early industrialization drives. This was not surprising, as both states were preoccupied with regime survival in the face of acute security threats, particularly between the 1950s and the end of the 1970s. In addition, the militaries in China and North Korea wielded extensive political and policy-making power and influence that ensured that they had priority access in resource allocations and technology and economic development plans.

The key features of the military techno-nationalist model that was adopted by China between the 1950s and 1970s – some elements of which are also pursued by the DPRK – were that (Feigenbaum 2003):

- technological development is strategic and has implications for the relative position of the state in the global military and economic balance, or what Chinese strategists term comprehensive national strength;
- the state must invest in critical technological sectors because of the high risks and long-time cycles involved in high-technology R&D;
- the state should pursue import-substituting indigenization;
- the state must nurture an indigenous capacity to innovate; and
- technology diffusion, whether through spin-offs or spin-ons, should be a central, long-term goal.

This stress on military objectives meant that civilian economic development was severely affected. For China, its economic development did not begin to take off until Deng Xiaoping came to power at the end of the 1970s and shifted development priorities decisively in favour of civilian goals. The DPRK has remained overwhelmingly committed to a military techno-nationalist development path to the present day, which has prevented any meaningful growth of the civilian economy.

Chinese leaders from Mao Zedong in the 1950s to current leader Xi Jinping have emphasized the importance of techno-nationalist principles in their defence industrialization strategies, although the relative balance between military and commercial priorities have shifted significantly during this period. Whereas Maoist China embraced military techno-nationalism between the 1950s and late 1970s, subsequent regimes from Deng Xiaoping to Jiang Zemin and Hu Jintao have leaned more towards commercial techno-nationalism (Cheung 2009).

The Chinese techno-nationalist model is known as the “Two Bombs, One Satellite” or *Liangdan Yixing* ideology. The name is a reference to the defence industry’s successful development of nuclear weapons and space capabilities in the 1960s and 1970s. An important characteristic of *Liangdan Yixing* is its emphasis on big science, especially the undertaking of large-scale and highly complex projects. This is a hallmark of the current Chinese leadership’s approach to weapons development such as the building of aircraft carriers, stealth aircraft, nuclear submarines, and new generations of intercontinental ballistic missiles.

Looking ahead, techno-nationalist impulses will continue to influence Asia’s defence industries although there appears to be a narrowing of the military and commercial techno-nationalist tracks into a more integrated commercial military techno-nationalist approach. The Chinese authorities in the past year have issued a raft of new strategies and plans charting the development of the country’s national and defence economies over the next 5–15 years, of which a high priority is the pursuit of civil–military integration.

Another important emphasis for China is on “original innovation,” which means nurturing indigenous research, development, and production capabilities. Japan, the ROK, the DPRK, and India have reaffirmed their commitments to building up their domestic defence industrial establishments by supporting major new long-term weapons development programmes. Techno-nationalism in Asia’s defence industries in all its hues (commercial, military, hybrid) remains an entrenched and powerful force in shaping the region’s defence technological development.

With increasing regional security tensions because of China's military rise and North Korea's intensive development of nuclear weapons, the Asia Pacific region is once again seeing the return of security dilemmas and arms races. How influential techno-nationalist thinking will be in the shaping of regional defence industries to respond to these challenges will very much depend on the willingness of governments to invest on nurturing local capabilities as opposed to simply relying on foreign imports. China has made clear with its defence development priorities and resource allocations that it regards techno-nationalism as a core objective, while Japan and South Korea have sought to hedge their bets by taking modest steps in boosting their indigenous defence production capabilities.

Disclosure statement

No potential conflict of interest was reported by the author.

Notes on contributor

Tai Ming Cheung is an associate professor at the School of Global Policy and Strategy at UC San Diego and the director of Institute on Global Conflict and Cooperation. He is a long-time analyst of Chinese and East Asian defence and national security affairs. Cheung was based in Asia from the mid-1980s to 2002 covering developments in greater China. His latest book, *Fortifying China: The Struggle to Build a Modern Defense Economy*, was published by Cornell University Press in 2009.

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